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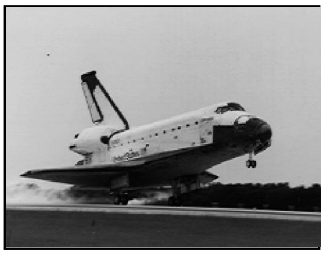
Spaceport News

America's gateway to the universe. Leading the world in preparing and launching missions to Earth and beyond.

John F. Kennedy Space Center

Mission update



Mission: STS-78 on Columbia.

Launch date, time: June 20, 10:49 a.m. from Launch Pad 39B.

Primary payload: Life and Microgravity Spacelab (LMS).

Landing date, time: Columbia touched down at Runway 33 of the Shuttle Landing Facility at 8:36 a.m. on July 7, 1996. The nearly 17-day-long flight made STS-78 the longest Shuttle mission to date.

Mission: STS-79 on Atlantis.

Launch date, time: Mid-September from Launch Pad 39A.

Mission Synopsis: STS-79 is the fourth in a series of NASA docking missions to the Russian Mir Space Station, leading to the construction and operation of the International Space Station. As the first flight of the Spacehab Double Module, (see photo, page 7) STS-79 encompasses research, test and evaluation of ISS as well as logistics resupply for the Mir Space Station. STS-79 is also the first NASA/Mir American crew member exchange, with astronaut John Blaha replacing Shannon Lucid aboard the Mir.

Landing date, time: To be determined.

Bertha sends Atlantis to VAB, boosters keep her there

After the threat from Hurricane Bertha forced the rollback of the Shuttle Atlantis to the Vehicle Assembly Building on July 10, mission managers opted to keep her there to replace her solid rocket boosters.

The decision means the fourth Shuttle-Mir docking flight, Mission STS-79, will be delayed until around mid-September. It also means that U.S. astronaut Shannon Lucid is on her way to setting a new record for U.S. long-duration spaceflight that will stand for some time to come.

Atlantis' motors are being replaced because technicians disassembling the motors from the previous flight, STS-78, observed that hot gas had seeped into J-joints in the field joints of the motors.

The most probable cause for

(See STS-79, Page 8)

KSC rolls out welcome for Olympic flame

KSC SHUTTLE Operations Manager Loren Shriver, right, transfers the Olympic flame to KSC runner Joanne Maceo's torch at the top of Launch Pad 39A after he carried the Olympic torch to the top of the pad as his contribution to the torch relay effort. Jon Granston of the Atlanta Committee for the Olympic Games (center) witnesses the exchange. Maceo then carried her lit torch down the concrete hard stand of the pad to pass the flame to another member of the KSC runner team.

Kennedy Space Center welcomed the Olympic flame July 7 in a big way. In addition to the landing of Columbia, which occured on time at 8:36 a.m., spectators and media were also offered an

unforgettable view of the flame passing in front of the Space Shuttle for STS-79.

As the flame made its way to the Visitor Center, a throng of spectators heralded its arrival with flag waving and cheers. The Melbourne Municipal Band and Challenger Fife and Drum Corps provided patriotic music. And a recap of the day's activities and the torch's journey across the United States played on a jumbo video wall.

NASA Administrator Dan Goldin and Center Director

(See TORCH, Page 3)

THE NASA KENNEDY Management Association recently named new officers for 1996-97. The officers, installed during a banquet June 28 at KARS II are, from the left, Bob Gerron, Mission Assurance, treasurer; Vanessa Stromer, Shuttle Processing, secretary; and Catherine Alexander, Installation Operations, president. Not pictured is Miguel Rodriguez, Payloads Processing, vice president.

Space Week events planned at Visitor Center

The Kennedy Space Center Visitor Center has a number of events underway to celebrate Space Week, Tuesday, July 16 through Tuesday, July 23.

Space Week is a nationally recognized period to honor the men and women whose efforts have contributed to America's achievements in space. At press time activities were set to begin July 16 with a talk and book signing by Buzz Aldrin, the second man to walk on the moon, and the grand opening of the Visitor Center's "Mission to Mars" interactive exhibit commemorating the 20th anniversary of the Viking probe. That exhibit will be on display through January 1997.

Upcoming features include an exclusive viewing of a commemorative film on Apollo 11 to be shown throughout the day on July 20, a public briefing and poster signing by astronaut/artist Alan Bean on July 22 from 10 a.m. to noon and 1-3 p.m.; and an appearance by Barbara Eden, star of the television series "I Dream of Jeannie" on July 23 from 11:30 a.m. to 1:30 p.m. The activities are all free.

Brevard crisis line seeks volunteers

Kennedy Space Center employees have an opportunity to contribute directly to the community by volunteering to assist Crisis Services of Brevard, Inc. in responding to calls for help.

The telephone counseling service provides confidential 24-hour-a-day service to people who call in with any type of problem.

Opportunities are available for trained and untrained positions as crisis line volunteers, who provide 24-hour-a-day assistance to callers; sunshine service volunteers who offer telephone outreach and reassurance to isolated or homebound elderly clients; data entry assistants, who assist in entering call data and community resource data into a computer system; and fund-raising, special projects or administrative assistants who help with events and projects.

Time commitments vary depending upon the area of service. For more information, contact Linda Lawrence, program director, at 631-9290. Crisis Services of Brevard, Inc. is a United Way agency.

SIX STUDENTS participating in the KSC/UCF Space Scholars Program and Science and Engineering Scholars Program recently assisted with a presentation at the University of Central Florida on preparing high school sophmores, juniors and seniors for college. They are, from the left, Arthur McClung, a math major at Morehouse College in Atlanta; Summer Weisburg, a computer engineering major at the University of Central Florida; Monica Rivas, an industrial engineering major at the University of Central Florida; Mimmie Lui, a civil engineering major at the University of New Mexico; Shalot Armstrong, an electrical engineering major at the University of Texas; and Brian Baron, a math major at Morehouse. The scholars programs target minority students who have traditionally been under-represented in engineering and science career fields. The objective is to provide trained employees for permanent employment within the U.S. workforce. The students must maintain a 3.0 GPA and are awarded with a four-year scholarship, a yearly allowance and ten weeks of summer employment at KSC. The programs are administered by the Equal Opportunity Office.

JUDY CASPER worked in sports information during the Olympic Trials last month.

KSC employees volunteer at Olympics

Judy Casper, branch manager of public relations for EG&G Florida, Inc., and Klaus Staefe, who works in the Installation Operations Directorate, are volunteering their sports-related experience to the Olympics.

Casper, who has an extensive background in sports administration, will be working with representatives of the International Amateur Athletics Association, the official governing body for track and field competition, for the duration of the Games, July 22 through Aug. 4.

Staefe, who has officiated at hockey games on the international level, has been designated as the officials coordinator for all soccer games played in Orlando. Staefe also officiated at the World Cup in Orlando in 1994.

Warm crowds greet torch along road through KSC

TOP LEFT: KSC runner Eric Oulette, accompanied by an Atlanta Committee for the Olympic Games escort, proudly carries the torch down the Saturn Causeway on the way to Launch Pad 39A.
TOP RIGHT: Marty Winkel savors the cheers of the crowd as he delivers the torch to the KSC Vistor Center.
CENTER: Loren Shriver pauses in front of the Space Shuttle Atlantis after receiving the flame at Launch Pad 39A.
BELOW LEFT: STS-78 Pilot Kevin Kregel, NASA Administrator Dan Goldin, Center Director Jay Honeycutt and STS-78 Commander Tom Henricks stand with the symbolic torch the STS-78 crew carried aboard that mission.
BELOW RIGHT: Jane Hodges lights her torch from a cauldron where the flame was held during ceremonies at the Visitor Center.

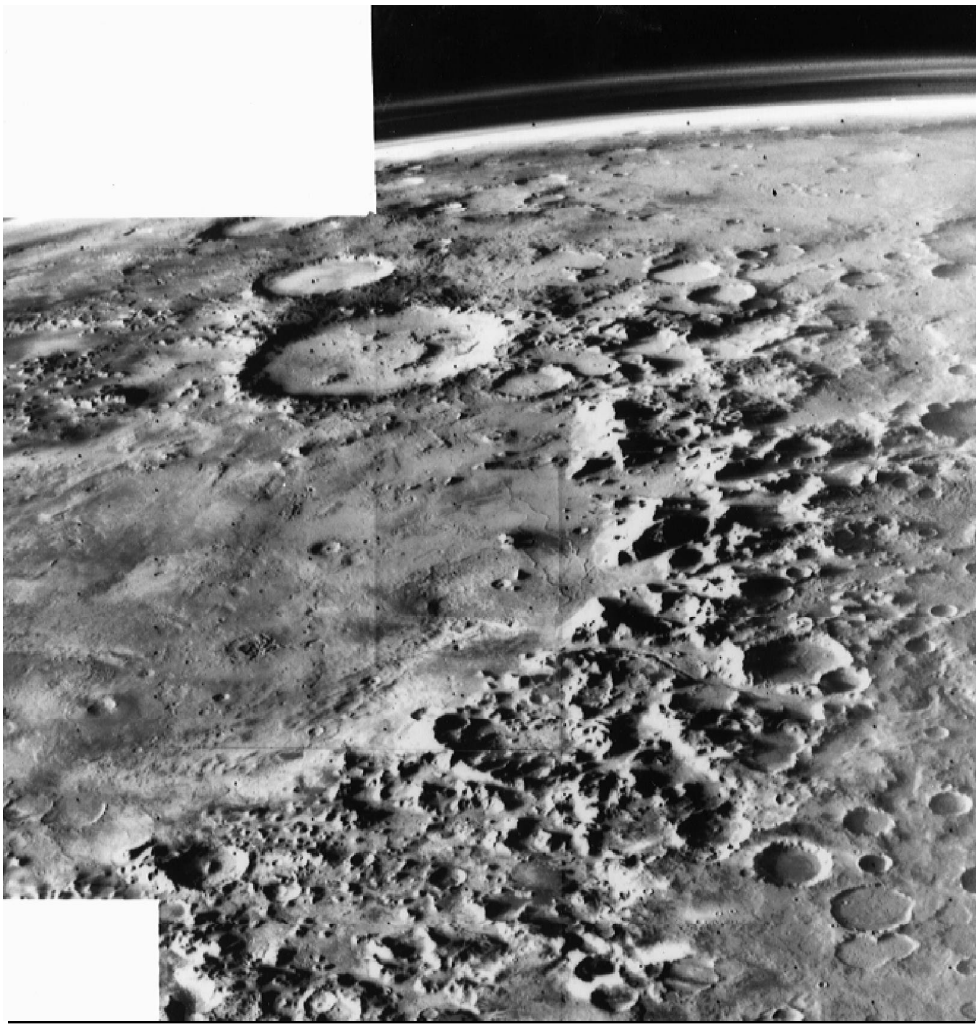
TORCH. . .

(Continued from Page 1)

Jay Honeycutt were on hand to welcome the torch as were STS-78 Commander Tom Henricks and Pilot Kevin Kregel, who presented a symbolic torch that was flown on that mission to a representative from the Atlanta Committee for the Olympic Games.

Hugh Harris, director of Public Affairs, acknowledged each of the 20 runners who carried the torch through Kennedy Space Center before signaling Jane Hodges, a Public Affairs employee, to light her torch from a cauldron holding the flame, and carry it forward on its journey to Atlanta and the Games.

Mars probes build on past



AN OBLIQUE view of Mars, which captures what scientists jokingly refer to as the "smiley face," was obtained from 12,000 miles (19,000 kilometers) away on July 11, 1976, by one of the Viking Orbiter 1's two TV cameras. This photo is actually a composite of four frames taken through a red filter about three hours before the spacecraft made its daily pass over the landing site. With the horizon to the right, north is toward upper left.

Twenty years after the landing of the Viking Orbiter on Mars, plans are underway for a decade of exploratory missions to the Red Planet.

On Nov. 6, NASA and the Jet Propulsion Laboratory (JPL) plan to begin the effort with the launch of Mars Global Surveyor on a Delta II rocket from Cape Canaveral Air Station (CCAS) Complex 17A. The Surveyor will travel hundreds of millions of kilometers to carry out an extensive study of the planet using its suite of sophisticated remote-sensing instruments.

A month later, on Dec. 2, the Mars Pathfinder is scheduled to launch on a Delta Rocket from CCAS Complex 17B.

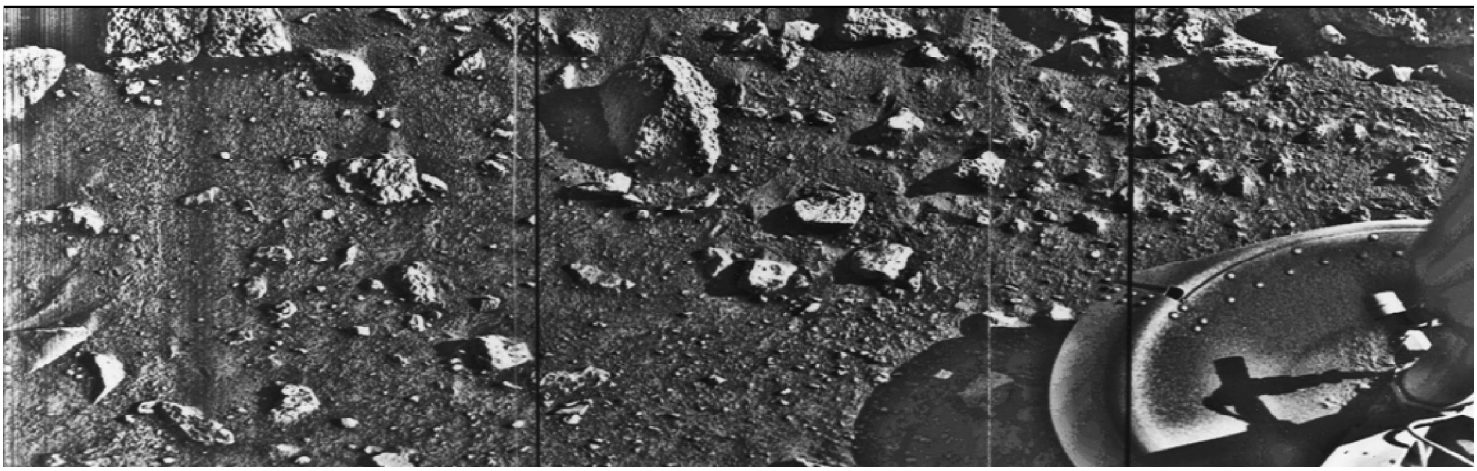
Pathfinder will continue the work of the Viking missions, the first of which landed on the Martian surface on July 15, 1976. Pathfinder's lander will release the first autonomous rover ever used to explore the surface of another planet.

The two projects begin a series of launches scheduled to occur every two years for the next decade.

By studying Mars, the most likely planet for future human expeditions, scientists hope to better understand the formation and evolution of Earth and the inner solar system.

Wayne Lee, mission planner for Mars operations at JPL, presented a briefing for KSC employees on July 8, highlighting the Surveyor and Pathfinder missions and sharing his insight on the development of the probes.

He also talked about the history of Mars exploration these missions are building on.



THIS IS THE first photograph ever taken on the surface of Mars. It was obtained by Viking 1 just minutes after the spacecraft landed on July 20, 1976. The image shows rocks and finely granulated material -- sand or dust. The large rock in the center is about four inches (10 centimeters) across.

Mariner paints first picture

The first successful spacecraft to fly by Mars was NASA's Mariner 4 launched in 1964, Mars Mission Planner Wayne Lee said during his briefing at KSC.

That craft was able to collect images of about one percent of the Martian surface and showed a barren planet, full of craters but devoid of life.

Data from further Mariner missions contributed to a clearer picture of the mysterious planet:

— Mars is less than half the size of Earth with about a third of the Earth's mass.

— Its gravity is three-eighths that of Earth: an 80-kilogram astronaut would weigh about 30 kilograms on Mars.

— The planet is half again the distance from the Sun that the Earth is — about 1.5 astronomical units. An AU is the average distance of Earth from the Sun, 150 million kilometers. It takes two Earth years for Mars to orbit the Sun once.

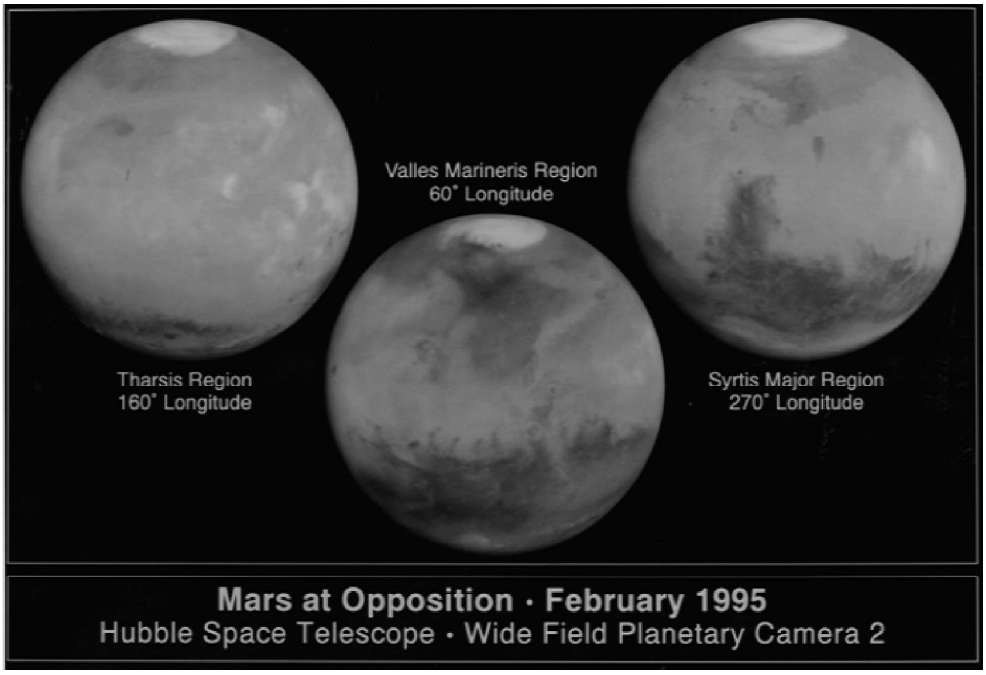
— The ice caps at Mars' poles grow under a haze of cloud during winter in the planet's atmosphere. Summer ice caps are thought to be water ice but the winter caps are believed to contain frozen carbon dioxide.

— Impact craters, which may be more than 3 billion years old, dominate the southern hemisphere but are more thinly scattered over the mainly volcanic surface of the northern hemisphere.

— Smaller valleys, or channels, up to 1,000 kilometers long, appear to have been formed by running water which may have come from rain.

Viking 1, 2 break new ground

Viking 1 and 2, each consisting of an orbiter and a lander, were launched within a month of each other in 1975 to attempt to learn more about the planet by providing a close-up examination of the surface. The landers set down in two widely separated areas of the northern hemisphere. Data and images received from Viking painted a picture of subfreezing cold and dry desert — a terrain unsuitable for life. The Viking orbiters found dry beds of once-flowing channels and streams. It is believed floods may have originated in deep aquifers and surfaced during ancient periods of volcanic activity.



THESE HUBBLE SPACE TELESCOPE images, taken February 25, 1995, provide the most detailed complete global coverage of Mars ever seen from Earth.

Surveyor to map surface

The Surveyor spacecraft is scheduled to arrive at the skid strip at CCAS Aug. 15, Lee said. After being launched at 1:30 p.m. Nov. 6, the craft is expected to reach Mars ten months later. Over a two-year period the Surveyor is geared to provide global maps of the Martian surface topography and mineral distribution and monitor global weather.

Pathfinder will land in flurry

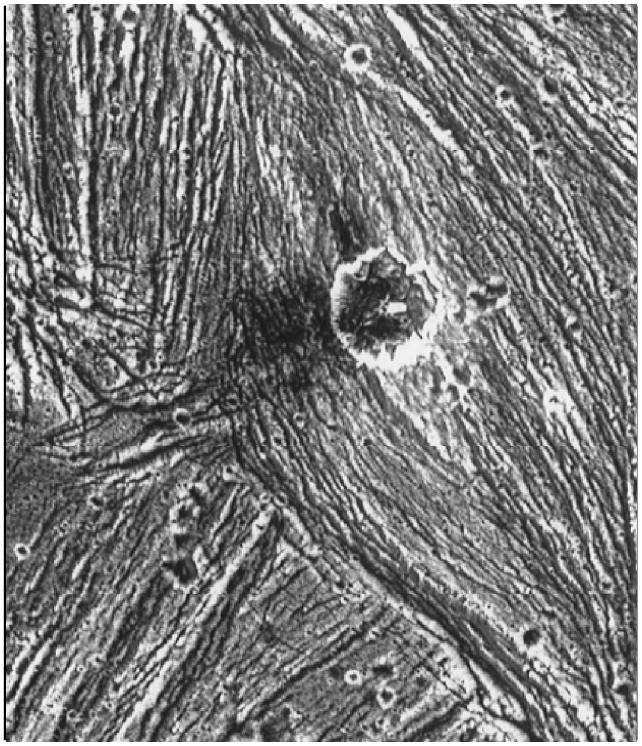
The Pathfinder is set to provide a fireworks display unlike any other on July 4, 1997, when it will hurl through the Martian atmosphere like a meteor until a parachute is deployed at twice the speed of sound at 10 kilometers above the ground. Rockets inside the backshell will then be fired to further slow the lander's descent. The parachute and an attached tether will be released and the lander will be engulfed by airbags which will dissipate energy by allowing it to bounce on the surface. Once the lander comes to a complete rest, it will unfold three petals, designed to set the lander upright and provide a platform for the six-wheeled solar-powered robot rover the size of a microwave oven. The rover will carry instruments for investigating the structure of the Martian atmosphere, surface meterology, surface geology, form and structure.

Future to build on experience

The experience of the Pathfinder will be capitalized on in 1998, 2001, 2003 and 2005 when additional landers are scheduled to be launched. Small orbiters launched in 1998 and 2003 will carry other instruments to serve as relay stations for later international missions.

A videotape of Wayne Lee's presentation on the Surveyor and the Pathfinder is available for checkout from the video library at Headquarters, Room 1451.

THIS PICTURE OF Jupiter was taken by Voyager 2 on June 10, 1979, from a distance of 24 million kilometers. The shadow of Ganymede, the largest of the Jovian satellites, is visible on top of the planet's cloud patterns at left. At right is Io, the innermost of the large satellites.



THE GALILEO spacecraft has provided this view of the surface of Ganymede. The moon, three-quarters the size of Mars, contains craters and basins, grooves and mountains. Additional images can be found on the World Wide Web at: http://newproducts.jpl.nasa.gov/galileo/.

Galileo captures new detail of Jupiter moon

The Galileo orbiter is providing the clearest images of Jupiter's largest moon ever seen on Earth.

The first images to be returned to Earth were released July 10 from the Jet Propulsion Laboratory, Pasadena, CA. Galileo flew by the large, icy moon Ganymede at 2:29 a.m. EDT on June 27, passing within 519 miles (835 kilometers) of Ganymede at a relative speed of about 17,448 miles per hour. That is 70 times closer than Voyager 2's closest approach in 1979 and 133 times closer than Voyager 1.

With a diameter of 3,269 miles (5,262 kilometers), Ganymede is the largest moon in the Solar System — bigger than Mercury and about three-quarters the size of Mars. It possesses a variety of familiar Earth-like geologic formations including craters and basins, grooves and mountains. The bulk of the satellite is believed to be about half water-ice and half rock. Portions of its surface are relatively bright, clean ice while the other regions are covered with darker "dirty" ice. The darker areas appear to be ancient and heavily cratered, while the lighter regions display evidence of tectonic activity that may have broken up the icy crust. Galileo entered orbit around Jupiter on Dec. 7, 1995.

Galileo's high-resolution images show features on Ganymede as small as 33 feet across. Instruments on board will assess Ganymede's surface chemistry and search for signs of an atmosphere around the big moon. Measurements will be made to characterize Ganymede's gravity field and to determine if it possesses a magnetic field.

Galileo's Ganymede encounter marks the start of a steady stream of data to be returned to Earth by Galileo's instruments throughout the course of its two-year tour of the Jovian system, which continues through December 1997.

Beginning this month, data return will include an average of two to three images per day.

The remainder of Galileo's mission is to complete 11 orbits of Jupiter, conducting multiple close flybys of the moons Ganymede, Europa and Callisto, with numerous, more distant studies of the moon Io also scheduled throughout the tour. Studies of Jupiter itself are planned throughout the tour, and nearly continuous studies of Jupiter's enormous radiation and magnetic fields will be conducted.

The fifth planet from the Sun is known primarily for the banded appearance of its upper atmosphere and its centuries-old Great Red Spot, a massive, hurricane-like storm as big as three Earths. Jupiter generates the biggest and most powerful planetary magnetic field, and it radiates more heat from internal sources than it receives from the Sun.

Given its large size and its many natural satellites, Jupiter is often described as a miniature solar system. Jupiter has 318 times more mass and 1,400 times more volume than Earth, but is only one-fourth as dense, since it is composed primarily of hydrogen and helium. It is orbited by at least 16 moons (and Galileo — its first artificial satellite).

The 2-1/2-ton Galileo orbiter spacecraft was launched aboard Space Shuttle Atlantis on Oct. 18, 1989. It carries the most capable payload of scientific experiments ever sent to another planet.

NASA's Jet Propulsion Laboratory built the Galileo orbiter spacecraft and manages the overall mission.

Galileo's atmospheric probe, which plunged into the planet on Dec. 7, 1995, was managed by NASA's Ames Research Center, Mountain View, CA.

Hubble provides new perspective on stars

While Galileo has been gathering ground-breaking data about Jupiter and its moon, the Hubble Space Telescope has consistently been providing equally revolutionary information about stars.

Most recently the telescope has been used successfully to measure the diameters of a special class of pulsating stars called *Mira variables,* which rhythmically change size.

The results suggest these gigantic, old stars aren't round but egg-shaped.

Knowing more about these enigmatic stars is crucial to understanding how stars evolve, and may preview the fate of the Sun, five billion years from now.

Due to their distance, the stars are too small for their disks to be resolved in conventional pictures (taken in visible light), so astronomers used Hubble's Fine Guidance Sensors (FGS) to achieve visible light observations of the angular diameters (a measure of apparent width) of two *Mira variables,* R Leonis and W Hydrae.

These unique observations were made by Dr. Mario G. Lattanzi of Turin Observatory (Italy), Dr. M. Feast of Cape Town University (South Africa), Dr. U. Munari of Padova Observatory (Italy), and Dr. P. Whitelock with the South African Astronomical Observatory. The results are being submitted to the *Astrophysical Journal Letters* for publication.

Hubble's Fine Guidance Sensors are normally used for tracking astronomical targets that are observed with the other scientific instruments aboard Hubble. Instead of taking pictures, the FGSs make an interference pattern from incoming starlight.

The resulting bright and dark zones created by the interference pattern, which resemble ripples in a pond, can be used to measure extremely small angles on the sky of only 1/100 of an arcsecond across (the apparent width of a dime at about 200 miles away).

FGS measurements show that R Leonis' apparent diameter (in visible light) is 70 x 78 milliarcseconds (eight by nine hundred million miles at the star's distance of about 390 light years) along the star's long and short axis, respectively, and 76 by 91 milliarcseconds (with linear dimensions similar to those of R Leonis) for W Hydrae. If placed within our solar system, both of these stars would extend well beyond the orbit of the Earth and almost to that of Jupiter.

STS-79 MISSION Specialists Carl Walz, left, and Jay Apt examine the layout of the double Spacehab module. The double module configuration will be flown for the first time on Mission STS-79, the fourth docking of the U.S. Shuttle to the Russian Space Station Mir. Doubling the pressurized mini-laboratory allows more supplies and equipment to be taken to Mir, while still allowing room for scientific research.

Lockheed Martin selected to build X-33

Lockheed Martin has been selected to build the X-33 test vehicle, a one-half scale model of the Reusable Launch Vehicle (RLV) which will be used to demonstrate advanced technologies that will dramatically increase reliability and lower the costs of putting payloads into space.

Lockheed Martin will design, build and conduct the first test flight of the X-33 test vehicle by March 1999, and conduct at least fifteen flights by December 1999. NASA has budgeted $941 million for the project through 1999. Lockheed Martin will invest $220 million in its X-33 design.

Called "VentureStar," the Lockheed Martin design is based on a lifting body shape with a radical new aerospike engine and a rugged metallic thermal protection system which would be launched vertically like a rocket and land horizontally like an airplane.

"The RLV program is a radical departure from the way NASA has done business in the past," NASA Administrator Daniel S. Goldin said. "Our role is to develop the high risk technologies that industry cannot afford. But we won't build the vehicle, industry will. NASA will be a user, not an operator."

Goldin said the objective of the RLV technology program is simple. "We want to develop technologies that will allow industry to build a vehicle that takes days, not months, to turn-around; dozens, not thousands of people to operate; reliability ten times better than anything flying today; and launch costs that are a tenth of what they are now. Our goal is a reusable launch vehicle that will cut the cost of a pound of payload to orbit from $10,000 to $1,000."

The X-33 will integrate and demonstrate all the technologies in a scale version that would be needed for industry to build a full-size RLV. "The X-33 will be about half the size of a full-scale RLV. It will be a remotely-piloted, sub-orbital vehicle, capable of altitudes up to 50 miles and speeds of Mach 15," said RLV Director Gary Payton.

The X-33 program is being conducted under a Cooperative Agreement, not a conventional customer/supplier contract.

Under this agreement, NASA defined the broad objectives and industry proposed an approach to meet the objectives.

"Cooperative agreements are performance-based," said Payton. "Payment is made only after the industry partner completes a pre-determined milestone."

"The X-33 test vehicle is the most advanced part of a three-pronged RLV program to develop and demonstrate the kinds of technologies required by industry to build a new launch system that will provide truly affordable and reliable access to space," Payton said. "The RLV approach is to design a little, build a little, test a little, fly a little."

Three industry teams competed for the X-33 vehicle. In addition to Lockheed Martin, proposals were submitted by McDonnell Douglas, Huntington Beach, CA, and Rockwell International, Downey, CA.

STS-79. . .

(Continued from Page 1)

the seepage is a new adhesive and cleaning fluid that is more environmentally friendly than the original.

While the crew of STS-78 was never in danger and the STS-79 boosters are safe to fly, managers want to better understand the J-joint problem and to improve the safety of the joint.

The extension requires some psychological re-grouping, Lucid acknowledged in a July 15 news conference. She had been pacing herself since her arrival on Mir March 24, and had reached a point where she was starting to count down the days to her return to Earth. There are other challenges as well: She is now going to miss two of her children's birthdays, and in August her two crewmates will depart and a new crew arrives.

But Lucid is tackling the new situation with the same customary good humor and positive spirits that she has shown throughout her stay on Mir. A Progress supply transport will fly up to the station July 24, bringing some requested items for her such as more books to read. And while she will miss crew mates Yuri Onufrienko and Yuri Usachev, she looks forward to having another woman on board for a little while — one of the three new crew members is French woman Claudie Andre-Deschays, whom Lucid met while training in Russia.

Asked what advice she has for John Blaha, the astronaut who will replace her on Mir, Lucid responded: "To relax and enjoy yourself and take each day as it comes." Lucid has relied on strong support from her family. She receives e-mail from them daily, which keeps her informed and makes her feel like she hasn't lost contact.

On July 15, Lucid broke the 115-day record for U.S. stay in space set last year by Norm Thagard. "I imagine we'll find something special to do" to commemorate the event, she said. "It doesn't take much for us to find a reason to celebrate."

THE SPACE SHUTTLE ATLANTIS is rolled back from Launch Pad 39A to the Vehicle Assembly Building on July 10 in response to the threat of Hurricane Bertha. Although the storm eventually took a turn to the north and stayed well clear of the Florida coast, early indications were that the Category Two hurricane, with winds of 96-110 mph, was approaching the Space Coast, prompting a center-wide evacuation. A 250-member rideout team was activated to conduct hurricane operations throughout the night. Brevard County barrier islands were also evacuated. After the National Weather Service issued an all-clear at 5 a.m. July 11, KSC employees were allowed to return to work.

ROLLBACKS

Atlantis' return to the VAB July 10 marks the 11th time a shuttle has been rolled back from the pad. Other rollbacks are:

1. STS-9, Columbia, October 1983, due to suspect exhaust nozzle on right solid rocket booster.

2. STS-41-D, Discovery, July 1984, after a pad abort.

3. STS 51-E/51-B, Challenger, March 1985, due to a timing problem with primary payload, Tracking and Data Relay Satellite-B.

4. STS-35, Columbia, 1st of 2 rollbacks, June 1990, due to hydrogen leak in the external tank/orbiter 17-inch umbilical.

5. STS-38, Atlantis, August 1990, due to hydrogen leak.

6. STS-35, Columbia, second rollback, October 1990, due to threat from Tropical Storm Klaus.

7. STS-39, Discovery, March 1991, because of cracks on lug hinges of external tank umbilical door drive mechanisms.

8. STS-68, Endeavour, August 1994, after pad abort.

9. STS-70, Discovery, June 1995, due to woodpecker damage on external tank.

10. STS-69, Endeavour, August 1995, due to Hurricane Erin.

Space Flight Awareness awards are presented

Six Silver Snoopies and a Space Flight Awareness Team Award were presented to Kennedy Space Center employees in June.

Astronaut Pam Melroy presented the prestigious Snoopy award to Chris Bowman of All World Travel and Gordon Chapp and Mark McBride of Rockwell International on June 5. On June 25, Astronaut Janet Kavandi presented the award to Wang Federal employee Richard Miron and Lockheed Space Operations employees (now United Space Alliance) Victor Toro and Mike Ramon.

On June 27, Cal Burch, NASA Protective Services Office, presented the five-member EG&G Facility Evacuation Committee with an award for generating increased awareness of fire-safety issues and

emergency evacuation procedures. The team developed a Facility Evacuation Preparedness handout and revised internal operating procedures, focusing on developing a pre-evacuation briefing for site manager, supervisors, and/or safety officials. Team members are: William Huffman, fire marshal, and Melany Baskin, Arthur McKinney, Lee Starrick and Carolyn Weisner, fire inspectors.

John F. Kennedy Space Center

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